

FIELDIANA

Zoology

Published by Field Museum of Natural History

Volume 58, No. 2

December 30, 1970

Shrews of the *Crocidura zarudnyi-pergrisea* Group with Descriptions of a New Subspecies

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The pale gray shrew, *Crocidura pergrisea*, is arousing taxonomic interest as new specimens of it are announced (Lay, 1967, p. 129). That interest warrants preliminary publication of the present account of *C. zarudnyi* which Ellerman and Morrison-Scott (1951, p. 83) regarded but a subspecies of *C. pergrisea*. A complete report on the mammals (except bats) of Afghanistan is in preparation as a contribution from the 1965 W. S. and J. K. Street Expedition to Afghanistan, and I have already published an account of the field work and descriptions of the country where the mammal collections were made (Hassinger, 1968).

Ellerman and Morrison Scott (1951, pp. 72, 83) treats *C. zarudnyi* as a subspecies of *C. pergrisea* saying: "we have not seen *pergrisea*, but from descriptions it is very like the Baluchistan form, *zarudnyi*, which it antedates." I have before me for direct comparison both paratypical specimens of *C. pergrisea*, the three specimens of the "*C. p. zarudnyi*" seen by Ellerman, a specimen from Lyallpur, W. Pakistan, six *C. zarudnyi* (recorded as *pergrisea*) collected by an earlier Street Expedition (Lay, 1967) from the Sistan Basin of Iran (nearly topotypical), and four from montane habitats in Afghanistan which were collected by the 1965 Street Expedition and established the first record for the country.

¹ Jan., 1965 to July, 1966; Thomas J. Dee Fellow, Aug., 1966—May, 1967.

A study of this material indicates that two species seem to be involved: *Crocidura pergrisea*, which seems to be restricted to Kashmir at high altitudes, and *C. zarudnyi* hitherto known from Baluchistan, West Pakistan, and eastern Iran, and here recorded from Afghanistan, occurring at both low and (subspecies) higher altitudes.

The differences between the samples of *Crocidura zarudnyi* and *C. pergrisea* are as follows:

In total length (whether obtained as tip of snout to tip of tail excluding hair, or as head-and-body length plus tail length) the means and the extremes (in millimeters) of 15 *zarudnyi* are 104.7 (92 to 116) compared to the 125, 128, and 129 of three *pergrisea*.

In greatest length of skull measured from the anteriormost margins of the upper incisors to the posteriormost margin of the supraoccipital, of 11 *zarudnyi* are 18.1 (16.9 to 19.0) compared to 20.0 and 20.1 of two *pergrisea*.

In greatest condylo-premaxillary length of skull 12 *zarudnyi* are (16.5 to 18.2) compared to 19.0, 19.1, and 19.3 of three *pergrisea*.

In greatest cranial breadth 12 *zarudnyi* are 7.9 (7.5 to 8.3) compared to 8.7, 8.8, and 8.9 for three *pergrisea*.

The length of the longest mystacial in 12 *zarudnyi* is 22 mm.; whereas that in two *pergrisea* is 27. The longest dorsal hairs in 12 *zarudnyi* are 6 mm., but in two *pergrisea* are 8 mm.

The base of the dorsal hair of *C. pergrisea* (collected in October) from near Shigar, Baltistan, Kashmir, 2,900 m., is Dark Mouse Gray¹ followed by a 1 mm. band of white and tips varying from Cinnamon Drab to Hair Brown, giving their pelage an *extremely pilose, grizzled, pale grayish-brown* appearance. The base of the dorsal hair of *C. zarudnyi* (collected in November) from Iran, montane Baluchistan and Lyallpur, 110-2,400 m., is Deep Mouse Gray (lighter than Dark Mouse Gray) followed by a narrow 0.5 mm. band of white and tips of Cinnamon Drab, giving their pelage a slightly grizzled, dull cinnamon-brown (Cinnamon Drab) appearance. Four *C. zarudnyi* (collected in July, August, and October) from mountains in Afghanistan, 2,250-2,650 m., have dorsal hairs similar to those of *pergrisea* but shorter and without Cinnamon Drab tips, giving their dorsal pelage a much less pilose, less grizzled, brownish-gray appearance.

¹ Capitalized color terms are from Ridgway (1912).

Thus, the very small sample of *Crocidura pergrisea* seems to be of a substantially larger form than *zarudnyi*, and one that differs markedly from *C. zarudnyi* in October pelage. These differences seem to me to be great enough to justify recording them here as separate species.

Both *pergrisea* in Kashmir and mountain populations of *zarudnyi* in Afghanistan seem to live in rocky biotopes while lowland populations of *zarudnyi* in Iran live in clay-loess biotopes and in W. Pakistan (Taber et al., 1967, p. 395) in "xeric tropical thorn plains."

So far I have treated *C. zarudnyi* as a single unit. But four specimens of this species taken in the mountains of Afghanistan, while falling within the diagnosis of *C. zarudnyi* given above, differ enough from the other specimens of the species, from West Pakistan and Iran, to merit recognition as a separate subspecies which, in honor of William S. and Janice Street, I name:

***Crocidura zarudnyi streetorum* new subspecies**

Type.—FMNH No. 102123, adult female, from Afghanistan: 30 km. northwest of Ghazni, approximately 33° 43' N 68° 15' E; collected October 8, 1965 by Hassinger, from dry, rocky habitat exemplified in Hassinger (1968, Fig. 8).

Diagnosis.—Differs from the typical form in the following: 1) grayer color; 2) average greater total length. The general hue of the dorsal pelage for typical *zarudnyi* and *C. z. streetorum* is, respectively: dull cinnamon-brown and brownish-gray. The average total length and extremes for four *streetorum* is 109 mm. (103–116); of 11 *C. z. zarudnyi* is 103 mm. (92–113).

Description.—The type and three paratypes (FMNH 102134 to 102136) consist of skins and skulls. The body measurements (in mm.) for the type are: head and body, 58; tail, 45; hind foot, 12; ear, 8. Its skull measures: greatest length, 18.3; condylo-premaxillary length, 17.5; cranial width, 8.0. The dorsal pelage is slightly grizzled, brownish-gray gradually changing low on the sides to white or Pale Smoke Gray ventral pelage consisting of hairs with Dark Mouse Gray bases tipped with white. Tail is Pale Smoke Gray, the proximal third being almost unicolor, the distal two thirds having a dorsal stripe of hairs resembling the dorsal pelage. The feet are Light Buff to white.

Range.—Mountains of Afghanistan between 2,250 and 2,650 m.

Material examined.—*Crocidura pergrisea*, two; USNM 175917, 175919 Kashmir: Skoro Loomba; Shigar, Baltistan. *Crocidura zarudnyi zarudnyi*, ten; BM 19.11.7.15, 19.11.7.16, 19.11.83, 64. 1195 West Pakistan: Panjgur, Turbat, Kelat, and Lyallpur, respectively. FMNH 96403 and 96409-13 Iran: Kerman (Seistan): 24 km. southwest of Zabol. *Crocidura z. streetorum*, four; FMNH 102123 and 102134-36 Afghanistan, Ishkamish, Badakhshan Natural Area; Shibar Pass, Central Natural Area; and Ghazni and Gardez of the Eastern Natural Area.

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